

D234

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
27 May 2004 (27.05.2004)

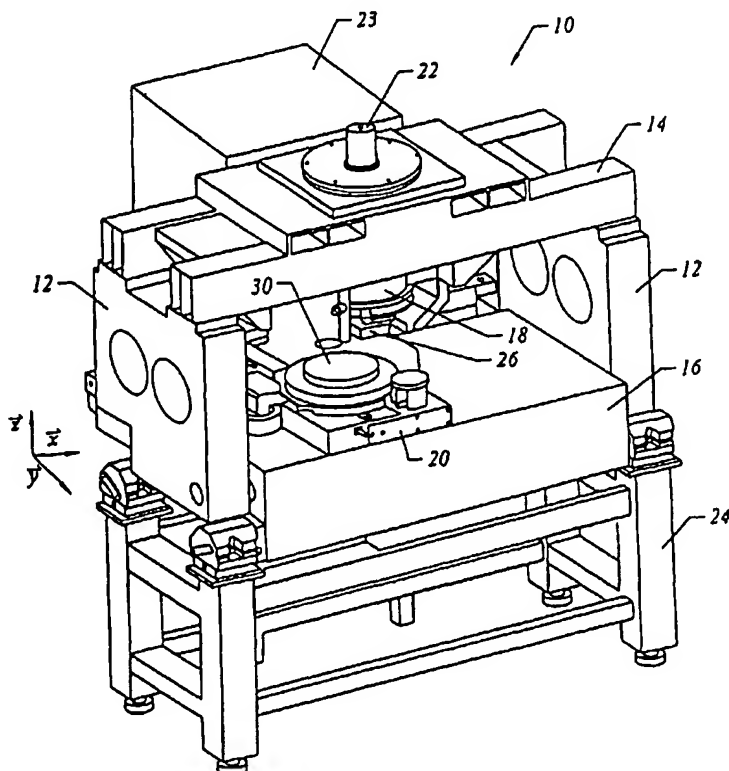
PCT

(10) International Publication Number  
**WO 2004/044651 A1**

- (51) International Patent Classification<sup>7</sup>: **G03B 27/58**, 27/60, 27/32, B29C 35/08, H01L 21/461
- (21) International Application Number: PCT/US2003/036012
- (22) International Filing Date: 12 November 2003 (12.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
10/293,224 13 November 2002 (13.11.2002) US  
10/316,963 11 December 2002 (11.12.2002) US
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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,

[Continued on next page]

(54) Title: A CHUCKING SYSTEM AND METHOD FOR MODULATING SHAPES OF SUBSTRATES



(57) Abstract: The present invention is directed to a chucking system (40) and method for modulating shapes of a substrate (26), having first (26b) and second opposed surfaces (26a). This is achieved by creating a pressure differential between differing regions of the first opposed surface to attenuate structural distortions in the second opposed surface that results from external forces bearing on the substrate. To that end, the chucking system includes a chuck body having first and second opposed sides. A side surface extends therebetween. The first side includes first (58) and second (60) spaced-apart support regions. The first support region cinctures the second support region and the first (52) and second (54) recesses. The second support region cinctures the second recess, with a portion of the body in superimposition with the second recess being transparent to radiation having a predetermined wavelength. The second side and the side surface define exterior surfaces.

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LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

- (84) **Designated States (regional):** ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- with amended claims and statement

**Date of publication of the amended claims and statement:**

5 August 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## **ARTICLE 19**

### **AMENDED CLAIMS**

received by the International Bureau on 15 June 2004 (15.06.2004)  
claim 12 is replaced by new claim 12 (1 page).

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in superimposition therewith defining a first chamber and said second recess and a second portion of said substrate in superimposition therewith defining a second chamber with said pressure control system operating to control a pressure in said second chamber to modulate a curvature of said second portion.

11. The chucking system as recited in claim 1 further including a wall disposed within said first recess, extending between said first and second support regions to segment said first recess into a plurality of sub-chambers, and a pressure control system in fluid communication with said throughway, wherein said substrate rests against said first and second support regions, covering said first recess, with said first recess and a portion of said substrate in superimposition therewith defining a first chamber with said pressure control system operating to control a pressure in said plurality of sub-chambers to create a pressure differential therebetween.

12. A method for modulating shapes of a substrate, having first and second opposed surfaces, spaced-apart from an imprinting layer, said method comprising:

creating a pressure differential between differing regions of said first opposed surface to attenuate structural distortions in said second opposed surface, with said structural being a function of said imprinting layer.

13. The method as recited in claim 12 wherein creating further includes subjecting a first subset of said regions to a pulling force and subjecting a second subset of said regions to a pushing force to establish a

**Statement under PCT Article 19(1)**  
**PCT/US03/36012**

The submitted amendment amends claim 12 as shown, while claims 1-11, and 13-19 are unchanged.

Claim 12 has been amended to make salient the features of a method for modulating shapes of a substrate, having first and second opposed surfaces, spaced-apart from an imprinting layer, by attenuating structural distortion in the second opposed surface, with the structural distortions being a function of the imprinting layer. This has been achieved by providing a chuck disposed adjacent to the substrate defining first and second chambers therebetween, wherein the first and second chambers have first and second pressures defined therein, respectively. The first and second pressures may be defined such that any surface distortions imposed upon the substrate may be reduced. These features are missing from the prior art.